VoxEU column: Public preferences for prioritising a COVID-19 vaccine

Public preferences for prioritising a COVID-19 vaccine

Jeroen Luyten, Roselinde Kessels, Sandy Tubeuf 25 November 2020

With the news of promising Covid-19 vaccines on the horizon comes a new challenge. The initial supply will not be sufficient to vaccinate everyone and choices will need to made over distribution. This column presents the results of an experiment in Belgium investigating people's preferences regarding the distribution of a scarce vaccine. There was no one single strategy that was considered best by a large majority, but three strategies were ranked first by between 20-30% of respondents: prioritising essential workers, the chronically ill, and older people. Libertarian-inspired approaches (such as highest willingness-to-pay or 'first-come, first served') and a strict egalitarian approach (such as a lottery) were clearly the least preferred options.

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While there are safe and potentially highly effective Covid-19 vaccines on the horizon (Mahase 2020), the supply of any successful vaccine will be limited in the first months. How to best allocate scarce medical resources to maximise population health and wellbeing is a question that hovers around research in health economics, and has been of utmost importance throughout the Covid-19 pandemic. In an earlier VoxEU column, Oliu-Barton and Pradelski (2020) discussed how vaccination could be rolled out effectively, accounting for the varying levels of incidence of Covid-19 within a given region. Still, most vaccine allocation strategies currently being discussed by policy institutions (National Academies 2020, World Health Organization 2020, European Commission 2020) and experts (Persad et al. 2020, Roope et al. 2020) focus on the characteristics of individuals. They suggest that frontline healthcare workers, highest risk people (i.e. those above 60 years old or with coexisting conditions), essential workers, and people who live in crowded settings and in higher risk environments should be vaccinated first. The population, however, may have different views on who should get priority access to the vaccine. Given the major collective dimension of the pandemic and the expected collective value of a Covid-19 vaccine, we asked members of the public who should get vaccinated first in their views (Lutyen et al. 2020).

Why do public preferences matter?

Public and patient involvement in healthcare decision-making is increasingly valued (Florin and Dixon 2004). Greater public involvement in public decisions, especially those with large stakes and a substantial ethical component, is often seen as leading to more democratic decision-making. But public involvement is also of instrumental value. As it demonstrated with other Covid-19 measures such as face masks (Karaivanov et al. 2020), public support plays a crucial role in making pandemic countermeasures effective. In the case of vaccination programmes, where public participation will be key to reach high coverage levels while, simultaneously keeping other preventive measures in place, it is essential to develop a policy that is also supported by the general public.

Ranking alternative vaccination strategies

We presented a representative sample of 2,060 Belgians (aged 18-80 years) with eight alternative strategies to distribute the Covid-19 vaccines: prioritising (1) those with pre-existing medical conditions, (2) those aged 60 and over, (3) the biggest virus spreaders, (4) working people, (5) ·ıl professions, (6) the fastest decision-makers (as a 'first-come, first-served' basis), (7) the bidders (as done in a market), or (8) not prioritising anyone (using a random allocation like ɛry). Respondents then ranked all eight strategies from the 'most appropriate' to 'least

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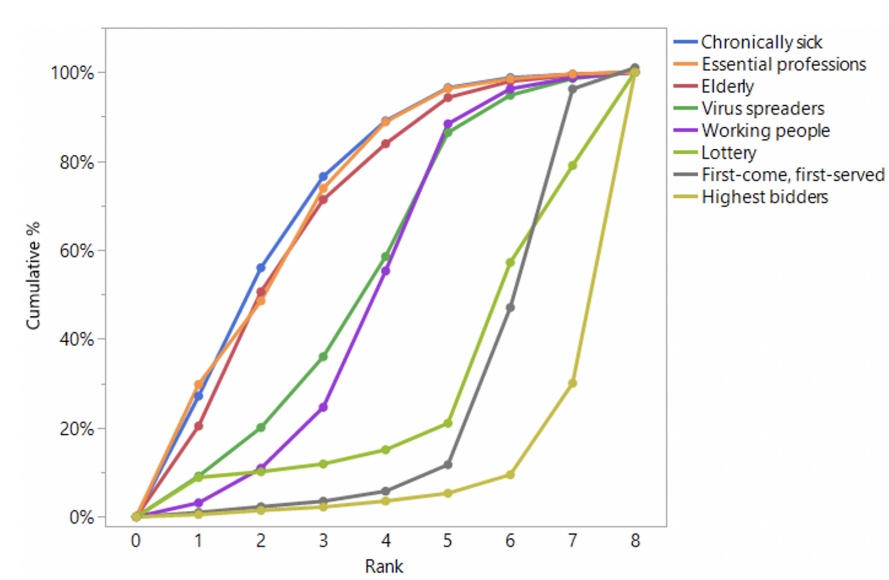
appropriate' according to their opinion. Figure 1 shows how often each strategy was ranked first, second, third, and so on using cumulative distribution functions. The least favoured options lie to the bottom in the initial ranking positions and exhibit higher proportions in the sixth, seventh, and eighth ranks. The figure clearly shows that there was not one single strategy that was considered best by a large majority, but three strategies were ranked first by between 20-30% of the respondents: prioritising essential workers, the chronically ill, and older people. On the other hand, libertarian-inspired approaches such as highest willingness-to-pay (or 'first-come, first served') strategies, and a strict egalitarian approach (such as a lottery) were clearly the least preferred options, with at least 80% of the respondents ranking them on the seventh or eight positions. Finally, targeting spreaders or protecting the economy were strategies ranked in the middle, with virus spreaders ranked ahead of working people in the top three most appropriate priority groups.

Figure 1 Cumulative distribution functions of alternative COVID-19 vaccine allocation strategies ranked from 'most appropriate' (rank of 1) to 'least appropriate' (rank of 8)



Vaccinating person A or person B?

We then asked respondents to choose whom they would vaccinate from two hypothetical candidates. Both candidates were described by five characteristics:

1) Their age (under 60 or 60 and over)

2) Whether their profession was an 'essential' one

3)Whether they had pre-existing conditions that made them vulnerable for severe Covid-19 complications and death

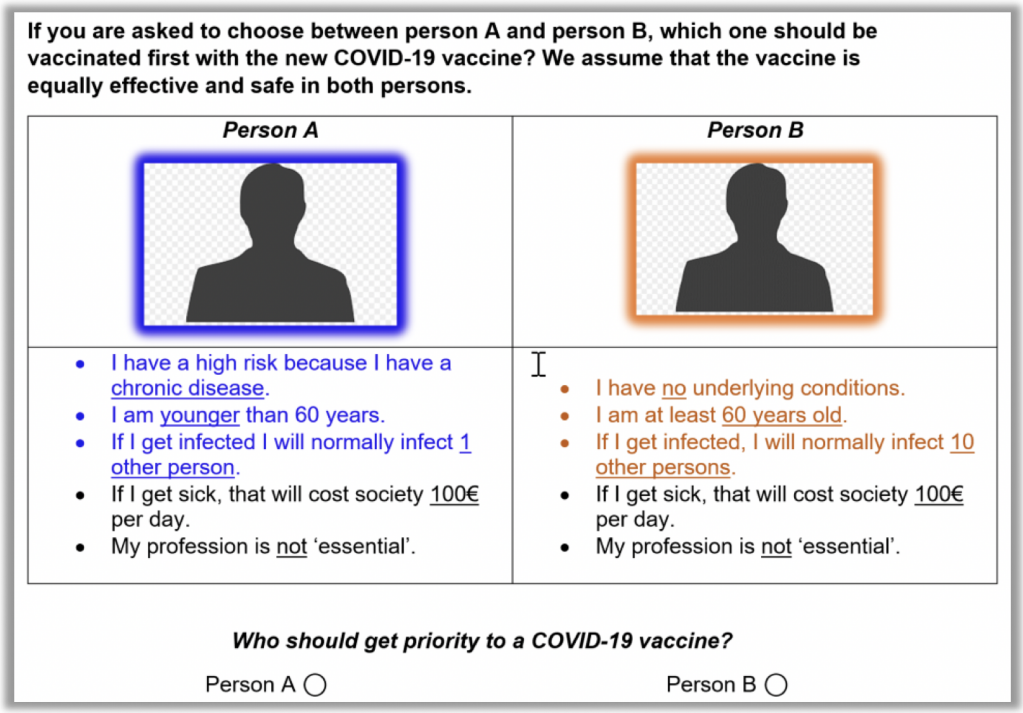
4) How big the economic impact or the cost to society would be because of their sickness (zero, €100, €1,000 euros per day of sickness) and

5) How many other persons they would probably infect (one or ten persons).

We used 'partial profiles', which meant that we kept two levels constant between the two choice profiles, while three levels varied. A determinant optimal (D-optimal) statistical design selected the best fraction of all possible partial profiles within a Bayesian framework accounting for existing prior ordering of the attributes levels. This allowed us to examine the importance of the attributes as well as their levels with maximum precision. A total of 30 different choice sets were generated, consisting of two hypothetical individuals competing for vaccination. Each respondent completed one block of ten choice sets (see Figure 2).

No subgroup had lexical priority over others. Instead, we found that three attributes were of large importance: belonging to a medically vulnerable group due to underlying conditions, having an 'essential profession', and being a relatively large spreader of the virus. Having underlying conditions was found to be the most important condition. Conversely to what was observed in the ranking exercise, when the candidates for vaccine prioritisation were labelled with concrete numbers (on what spreading the virus and being costly to the society meant), being aged 60 and over was not found to be a strong predictor of priority to vaccine access by the public.

2 Example of a choice set



There are two competing first candidates for vaccine priority

When investigating further individual heterogeneity between respondents, we identified two large clusters of respondents within the sample.

One cluster (54%, or 1,058 respondents) of the sample was adhering to a more 'utilitarian' strategy of maximising societal health outcomes by allocating vaccines strategically towards virus spreaders (cluster one). These people also thought that vaccinating those with high economic cost to society was to some extent relevant. The other cluster (46%, or 886 respondents) adhered to a more 'prioritarian' strategy and put those people who are at the highest medical risk first (cluster two). Being a virus spreader or someone who could cost a lot to the economy was of little or no importance in this cluster. However, both groups considered essential professions a priority group, albeit of secondary importance to their preferred group.

Prioritising people aged 60 or more was of minor importance in both groups, but being older than 60 received priority as the third ranked strategy in the 'prioritarian' group. In the 'utilitarian' group they were not prioritised; Instead, preference was given to vaccinating younger people. Hence, relative to other priority groups, many Belgians believe that age does not grant priority to Covid-19 vaccines.

Preferences for vaccination priority groups are not driven by self-interest

Membership of either cluster was not associated with most sociodemographic characteristics. However, compared to the utilitarian cluster, respondents belonging to the prioritarian cluster were more likely to be working, more convinced of the value of vaccines in general, more likely to accept being vaccinated with the Covid-19 vaccine themselves, less likely to think that the vaccine allocation strategy needed to be made only by the population, more likely to think that the government should make these decisions, and less likely to be French-speaking.

Conclusion

While there is almost a consensus on the priority candidates to the Covid-19 vaccines in the current political debate, ranking within those key groups is not straightforward (as observed by the European Commission and World Health Organization SAGE expert groups). Our evidence from Belgium indicates some clear target groups, but it also shows that the population is unable to decide who should be vaccinated first, second, and so on. Nonetheless, depending on the vaccine supply that will become available, a priority ranking may be important as selected priority groups constitute a sizeable fraction of the population already.

Needless to say, prioritisation decisions will also have to take into account the characteristics of the vaccines that become available. While some vaccines might have higher efficacy in reducing the likelihood of developing a severe form of Covid-19, others may be effective in reducing
nation risks (Lipsitch and Dean 2020). Ideally, they will do both. Similarly, some countries
ɜ a high transmission of the Covid-19 virus, whereas others may only have local outbreaks.

These aspects will determine the relevance of different priority strategies at the time of vaccinating. A successful and equitable vaccination strategy will obviously need to comprehend these specific parameters. However, the fundamental ethical choices in vaccine allocation can already be determined. Our study provides an insight into ethical trade-offs that policymakers might need to make in the foreseeable future, and how the population believes these decisions should be made.

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